

WHAT IS CLAIMED IS:

1. An optical disc controller for servo-controlling an optical disc device comprising a disc motor and an optical head, the disc motor rotating an optical disc, the optical head emitting a light beam for recording data on the optical disc and/or reproducing data from the optical disc,

the optical disc controller, comprising:

a variable clock output section for outputting a plurality of clock signals of different frequencies, and

a control section which receives from the optical head a signal indicating a deviation from a predetermined target value to servo-control the light beam of the optical disc device and performs an operation according to the signal indicating the deviation so as to obtain and output a signal indicating a control amount,

wherein the variable clock output section changes a frequency of the clock signal according to a recording speed and/or a reproducing speed when the optical disc device performs recording and/or reproduction, and the control section performs an operation to be performed in synchronization with the clock signal of the variable clock output section.

2. The optical disc controller according to claim 1, wherein the operation is performed by transmitting the signal

indicating the deviation through a filter having a predetermined characteristic, and the characteristic of the filter is varied according to the recording speed and/or the reproducing speed.

3. The optical disc controller according to claim 2, wherein the characteristic of the filter is determined by a filter coefficient and a frequency of the clock signal, and the filter coefficient is constant regardless of the recording speed and/or the reproducing speed.

4. An optical disc device for emitting a light beam to an optical disc having a track for recording data,

the optical disc device, comprising:

a converting section which converts, into an electric signal, light reflected from the optical disc or light transmitted through the optical disc,

a focus actuator for moving a focus of the light beam perpendicularly to a data surface of the optical disc,

a tracking actuator for moving the light beam in a radius direction of the optical disc,

a control section which performs an operation according to the electric signal and generates a control signal for controlling the focus actuator so that the light beam keeps a predetermined converging state on the data surface and

controlling the tracking actuator so that the light beam is positioned at a center of the track, and

a variable clock output section for outputting a plurality of clock signals of different frequencies,

wherein the variable clock output section changes a frequency of the clock signal according to a recording speed and/or a reproduction speed when the converting section performs recording and/or reproduction, and the control section performs an operation to be performed in synchronization with the clock signal of the variable clock output section.

5. The optical disc device according to claim 4, further comprising an input/output section which receives the electric signal, converts the signal into a digital signal, outputs the signal to the control section, receives a control signal from the control section, converts the signal into an analog signal, and outputs the signal to the focus actuator and the tracking actuator,

wherein the input/output section has a constant operating clock regardless of the recording speed and/or the reproducing speed.

6. The optical disc device according to claim 4, wherein the control section generates the control signal by

transmitting the electric signal through a filter having a predetermined characteristic, and the characteristic of the filter is varied according to the recording speed and/or the reproducing speed.

7. The optical disc device according to claim 6, wherein the characteristic of the filter is determined by a filter coefficient and a frequency of the clock signal, and the filter coefficient is constant regardless of the recording speed and/or the reproducing speed.

8. An optical disc controller for servo-controlling an optical head, a disc motor, and a light beam in an optical disc device comprising the disc motor and the optical head, the disc motor rotating an optical disc, the optical head emitting a light beam for recording data on the optical disc and/or reproducing data from the optical disc,

the optical disc controller, comprising:

an interrupt signal generating section for generating an interrupt signal in each predetermined time period, and

a control section which receives an electric signal indicating a current state or a deviation from a target value from the optical head and the disc motor of the optical disc device and performs an operation according to the electric

signal so as to obtain and output a control signal indicating a control amount,

wherein the control section performs the operation every time the interrupt signal is received from the interrupt signal generating section, and the control section stops operating and goes into a sleep mode at least for a predetermined time period between reception of the interrupt signal and reception of a subsequent interrupt signal.

9. The optical disc controller according to claim 8, wherein the control section performs the operation every time the interrupt signal is received, and the control section stops operating and goes into the sleep mode from when the operation is completed to when the subsequent interrupt signal is received.

10. The optical disc controller according to claim 8, wherein the operation includes a disc motor control operation for controlling the disc motor, an operation for focus control of the light beam, an operation for tracking control of the light beam, and an operation for traverse control of the optical head, and the control section, in each of the operations, stops operating and goes into the sleep mode during at least one of the operations.

11. The optical disc controller according to claim 8, further comprising an input/output section which receives the electric signal, converts the signal into a digital signal, outputs the signal to the control section, receives a control signal from the control section, converts the signal into an analog signal, and outputs the signal to the optical head and the disc motor,

wherein the control section receives the electric signal and outputs the control signal in each of the operations,

the control section goes into the sleep mode after performing one of the operations so as to output the control signal to the input/output section, and the control section resumes from the sleep mode after the input/output section receives an electric signal for a subsequent operation and completes conversion to a digital signal.

12. The optical disc controller according to claim 8, further comprising an input/output section which receives the electric signal, converts the signal into a digital signal, outputs the signal to the control section, receives a control signal from the control section, converts the signal into an analog signal, and outputs the signal to the optical head and the disc motor,

wherein the control section receives the electric signal and outputs the control signal in each of the operations,

the control section goes into the sleep mode for a predetermined time period after performing one of the operations so as to output the control signal to the input/output section, and the control section resumes from the sleep mode after a lapse of the predetermined time period.

13. The optical disc controller according to claim 9, wherein at least a part of the input/output section operates even when the control section is placed into the sleep mode.

14. An optical disc device, comprising:

an optical head which emits a light beam to an optical disc having a track for recording data, the optical head including a converting section which converts, into an electric signal, light reflected from the optical disc or light transmitted through the optical disc, a focus actuator for moving a focus of the light beam perpendicularly to a data surface of the optical disc, and a tracking actuator for moving the light beam in a radius direction of the optical disc,

a disc motor for rotating the optical disc,

an interrupt signal generating section for generating an interrupt signal in each predetermined time period, and

a control section which receives a signal indicating a current state or a deviation from a target value from the optical head and the disc motor and performs an operation according to the electric signal so as to obtain and output a control signal indicating a control amount,

wherein the control section performs the operation every time the interrupt signal is received from the interrupt signal generating section, and the control section stops operating and goes into a sleep mode at least for a predetermined time period between reception of the interrupt signal and reception of a subsequent interrupt signal.

15. The optical disc device according to claim 14, wherein the control section performs the operation every time the interrupt signal is received, and the control section stops operating and goes into the sleep mode from when the operation is completed to when the subsequent interrupt signal is received.

16. The optical disc device according to claim 14, wherein the operation includes a disc motor control operation for controlling the disc motor, an operation for focus control of the light beam, an operation for tracking control of the light beam, and an operation for traverse control of the optical head, and the control section, in each of the

operations, stops operating and goes into the sleep mode during at least one of the operations.

17. The optical disc device according to claim 14, further comprising an input/output section which receives the electric signal, converts the signal into a digital signal, outputs the signal to the control section, receives a control signal from the control section, converts the signal into an analog signal, and outputs the signal to the optical head and the disc motor,

wherein the control section receives the electric signal and outputs the control signal in each of the operations,

the control section goes into the sleep mode after performing one of the operations so as to output the control signal to the input/output section, and the control section resumes from the sleep mode after the input/output section receives an electric signal for a subsequent operation and completes conversion into a digital signal.

18. The optical disc device according to claim 15, further comprising an input/output section which receives the electric signal, converts the signal into a digital signal, outputs the signal to the control section, receives a control signal from the control section, converts the signal into an

analog signal, and outputs the signal to the optical head and the disc motor,

wherein the control section receives the electric signal and outputs the control signal in each of the operations,

the control section goes into the sleep mode for a predetermined time period after performing one of the operations so as to output the control signal to the input/output section, and the control section resumes from the sleep mode after a lapse of the predetermined time period.

19. The optical disc device according to claim 18, wherein at least a part of the input/output section operates even when the control section is placed into the sleep mode.

20. An optical disc controller for servo-controlling an optical disc device comprising a disc motor and an optical head, the disc motor rotating an optical disc, the optical head emitting a light beam for recording data on the optical disc and/or reproducing data from the optical disc,

the optical disc controller, comprising:

a control section which receives an electric signal indicating a current state or a deviation from a target value from the optical head and the disc motor of the optical disc device and performs an operation according to the electric

signal so as to obtain and output a control signal indicating a control amount, and

an input/output section having a monitor terminal, the input/output section receiving the electric signal to convert the signal into an analog signal from the control section or receiving a control signal from the control section to convert the signal into an analog signal, and outputting the converted signal from the monitor terminal to an outside.

21. The optical disc controller according to claim 20, wherein the electric signal is a focus error signal or a tracking error signal.

22. An optical disc device, comprising:

a disc motor rotating an optical disc;

an optical head emitting a light beam for recording data on the optical disc and/or reproducing data from the optical disc;

a control section which receives an electric signal indicating a current state or a deviation from a target value from the optical head and the disc motor of the optical disc device and performs an operation according to the electric signal so as to obtain and output a control signal indicating a control amount, and

an input/output section having a monitor terminal, the input/output section receiving the electric signal to convert the signal into an analog signal from the control section or receiving a control signal from the control section to convert the signal into an analog signal, and outputting the converted signal from the monitor terminal to an outside.

23. The optical disc controller according to claim 22, wherein the electric signal is a focus error signal or a tracking error signal.